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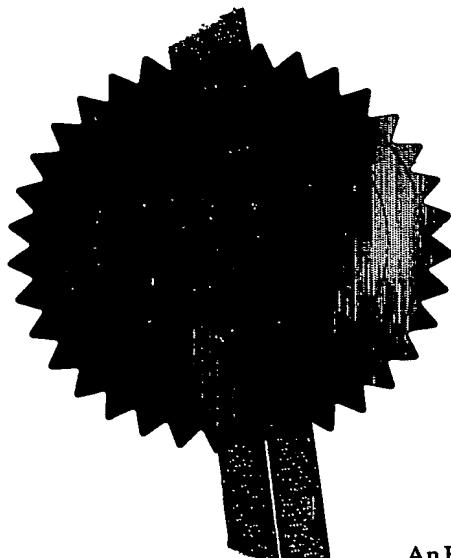
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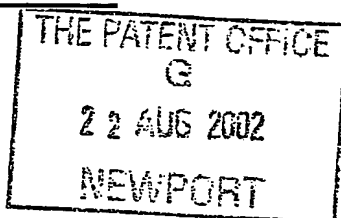
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1. Your reference	11088P3 GB/AK		
2. Patent application number (The Patent Office will fill in this part)	0219569.1		
3. Full name, address and postcode of the or of each applicant (underline all surnames)	Reckitt Benckiser Inc 1655 Valley Road Wayne New Jersey 07474 UNITED STATES OF AMERICA Patents ADP number (if you know it) 07852247001 ✓ If the applicant is a corporate body, give the country/state of its incorporation Delaware -US		
4 Title of the invention	Improvements In or Relating to Organic Compositions		
5. Name of your agent (if you have one)	John Crawford McKnight Reckitt Benckiser plc Group Patents Department Dansom Lane HULL HU8 7DS UNITED KINGDOM Patents ADP number (if you know it) 07799521001 ✓		
6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number	Country	Priority application number (if you know it)	Date of filing (day / month / year)
7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application (day / month / year)	Date of filing (day / month / year)	
8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if: a) any applicant named in part 3 is not an inventor, or b) there is an inventor who is not named as an applicant, or c) any named applicant is a corporate body. See note (d))	Yes		

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Description	12
Claim(s)	5
Abstract	1
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Priority documents	
Translations of priority documents	
Statement of inventorship and right to grant of a patent (<i>Patents Form 1/77</i>)	
Request for preliminary examination and search (<i>Patents Form 9/77</i>)	One
Request for substantive examination (<i>Patents Form 10/77</i>)	One
Any other documents (<i>please specify</i>)	FS2

1. I/We request the grant of a patent on the basis of this application.

Signature

Date

John C McKnight

John C McKnight

20 August 2002

2. Name and daytime telephone number of Person to contact in the United Kingdom

John C McKnight (01482) 583719

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IMPROVEMENTS IN OR RELATING TO ORGANIC COMPOSITIONS

- 5 The present invention relates to lavatory cleaning compositions.

Cleaning compositions are commercially important products and enjoy a wide field of utility in assisting in the removal of dirt and grime from surfaces, especially those characterized as useful with "hard surfaces". Hard surfaces are those which are
10 frequently encountered in lavatories such as lavatory fixtures such as toilets, shower stalls, bathtubs, bidets, sinks, etc., as well as countertops, walls, floors, etc.

According to the invention, there is provided a composition comprising an acidic constituent which comprises an acid selected from the group consisting of citric acid,
15 sorbic acid, acetic acid, boric acid, formic acid, maleic acid, adipic acid, lactic acid, malic acid, malonic acid, glycolic acid, and mixtures thereof; at least one anionic surfactant; at least one nonionic surfactant; at least one organic solvent; one or more optional constituents selected from coloring agents, fragrances and fragrance solubilizers, viscosity modifying agents, other surfactants, pH adjusting agents and pH buffers
20 including organic and inorganic salts, optical brighteners, opacifying agents, hydrotropes, antifoaming agents, enzymes, anti-spotting agents, anti-oxidants, preservatives, and anti-corrosion agents; and the balance, water.

One element of the inventive compositions is an acidic constituent, including water
25 soluble organic acids. The acid may be present in any effective amount, but desirably is not present in amounts of more than about 10%wt. based on the total weight of the compositions (generally from about 0.1 to about 10%wt.). The water soluble organic acids generally include at least one carbon atom, and include at least one carboxyl group ($-COOH$) in its structure. Examples of acids for use in the present invention
30 include formic acid, citric acid, sorbic acid, acetic acid, boric acid, maleic acid, adipic acid, lactic acid, malic acid, malonic acid, glycolic acid, and mixtures thereof. The amount of acid present in the composition, keeping in mind any optional ingredients that may be present, should be in an amount such that the pH of the composition is less than

6, preferably from about 5.0 to about 1.0, more preferably from about 4.0 to about 1.0, and even more preferably from about 3.0 to about 1.0.

Compositions of the present invention also include at least anionic surfactant. Suitable
5 anionic surfactants include, for example, alkali metal salts, ammonium salts, amine salts, or aminoalcohol salts of one or more of the following compounds (linear and secondary): alcohol sulfates and sulfonates, alcohol phosphates and phosphonates, alkyl sulfates, alkyl ether sulfates, sulfate esters of an alkylphenoxy polyoxyethylene ethanol, alkyl monoglyceride sulfates, alkyl sulfonates, olefin sulfonates, paraffin sulfonates, beta-
10 alkoxy alkane sulfonates, alkylamidoether sulfates, alkylaryl polyether sulfates, monoglyceride sulfates, alkyl ether sulfonates, ethoxylated alkyl sulfonates, alkylaryl sulfonates, alkyl benzene sulfonates, alkylamide sulfonates, alkyl monoglyceride sulfonates, alkyl carboxylates, alkyl sulfoacetates, alkyl ether carboxylates, alkyl alkoxy carboxylates having 1 to 5 moles of ethylene oxide, alkyl sulfosuccinates, alkyl ether
15 sulfosuccinates, alkylamide sulfosuccinates, alkyl sulfosuccinamates, octoxynol or nonoxynol phosphates, alkyl phosphates, alkyl ether phosphates, taurates, N-acyl taurates, fatty taurides, fatty acid amide polyoxyethylene sulfates, isethionates, acyl isethionates, and sarcosinates, acyl sarcosinates, or mixtures thereof. Generally, the alkyl or acyl radical in these various compounds comprise a carbon chain containing 12
20 to 20 carbon atoms. The anionic surfactant is present in the compositions of the present invention in an amount of from about 0.1 to about 10% by weight.

Examples of the foregoing anionic surfactants are available under the following tradenames: RHODAPON, STEPANOL, HOSTAPUR, SURFINE, SANDOPAN,
25 NEODOX, BIOSOFT, and AVANEL.

At least one nonionic surfactant is used in the composition. Nonlimiting examples of suitable nonionic surfactants which may be used in the present invention are as follows:

30 (1) The polyethylene oxide condensates of alkyl phenols. These compounds include the condensation products of alkyl phenols having an alkyl group containing from about 6 to 12 carbon atoms in either a straight chain or branched chain configuration with ethylene oxide, the ethylene oxide being present in an amount equal to 5 to 25 moles of ethylene oxide per mole of alkyl phenol. The alkyl substituent in such compounds can be derived,

for example, from polymerized propylene, diisobutylene and the like. Examples of compounds of this type include nonyl phenol condensed with about 9.5 moles of ethylene oxide per mole of nonyl phenol; dodecylphenol condensed with about 12 moles of ethylene oxide per mole of phenol; dinonyl phenol condensed with about 15 moles of ethylene oxide per mole of phenol and diisooctyl phenol condensed with about 15 moles of ethylene oxide per mole of phenol.

(2) The condensation products of aliphatic alcohols with from about 1 to about 60 moles of ethylene oxide. The alkyl chain of the aliphatic alcohol can either be straight or branched, primary or secondary, and generally contains from about 8 to about 22 carbon atoms. Examples of such ethoxylated alcohols include the condensation product of myristyl alcohol condensed with about 10 moles of ethylene oxide per mole of alcohol and the condensation product of about 9 moles of ethylene oxide with coconut alcohol (a mixture of fatty alcohols with alkyl chains varying in length from about 10 to 14 carbon atoms). Other examples are those C_6 - C_{11} straight-chain alcohols which are ethoxylated with from about 3 to about 6 moles of ethylene oxide. Their derivation is well known in the art. Examples include Alfonic® 810-4.5 (also available as Teric G9A5), which is described in product literature from Sasol as a C_{8-10} having an average molecular weight of 356, an ethylene oxide content of about 4.85 moles (about 60 wt.%), and an HLB of about 12; Alfonic® 810-2, which is described in product literature from Sasol as a C_{8-10} having an average molecular weight of 242, an ethylene oxide content of about 2.1 moles (about 40 wt.%), and an HLB of about 12; and Alfonic® 610-3.5, which is described in product literature from Sasol as having an average molecular weight of 276, an ethylene oxide content of about 3.1 moles (about 50 wt.%), and an HLB of 10. Product literature from Sasol also identifies that the numbers in the alcohol ethoxylate name designate the carbon chain length (numbers before the hyphen) and the average moles of ethylene oxide (numbers after the hyphen) in the product.

Other examples of alcohol ethoxylates are C_{10} oxo -alcohol ethoxylates available from BASF under the Lutensol® ON tradename. They are available in grades containing from about 3 to about 11 moles of ethylene oxide (available under the names Lutensol ON 30; Lutensol ON 50; Lutensol ON 60; Lutensol ON 65; Lutensol ON 66; Lutensol ON 70; Lutensol ON 80; and Lutensol ON 110).

Other examples of ethoxylated alcohols include the Neodol® 91 series non-ionic surfactants available from Shell Chemical Company which are described as C₉-C₁₁ ethoxylated alcohols. The Neodol® 91 series non-ionic surfactants of interest include Neodol 91-2.5, Neodol 91-6, and Neodol 91-8. Neodol 91-2.5 has been described as having about 2.5 ethoxy groups per molecule; Neodol 91-6 has been described as having about 6 ethoxy groups per molecule; and Neodol 91-8 has been described as having about 8 ethoxy groups per molecule.

Further examples of ethoxylated alcohols include the Rhodasurf® DA series non-ionic surfactants available from Rhodia which are described to be branched isodecyl alcohol ethoxylates. Rhodasurf DA-530 has been described as having 4 moles of ethoxylation and an HLB of 10.5; Rhodasurf DA-630 has been described as having 6 moles of ethoxylation with an HLB of 12.5; and Rhodasurf DA-639 is a 90% solution of DA-630.

Further examples of ethoxylated alcohols include those from Tomah Products (Milton, WI) under the Tomadol tradename with the formula RO(CH₂CH₂O)_nH where R is the primary linear alcohol and n is the total number of moles of ethylene oxide. The ethoxylated alcohol series from Tomah include 91-2.5; 91-6; 91-8 - where R is linear C₉/C₁₀/C₁₁ and n is 2.5, 6, or 8; 1-3; 1-5; 1-7; 1-73B; 1-9; - where R is linear C₁₁ and n is 3, 5, 7 or 9; 23-1; 23-3; 23-5; 23-6.5 - where R is linear C₁₂/C₁₃ and n is 1, 3, 5, or 6.5; 25-3; 25-7; 25-9; 25-12 - where R is linear C₁₂/C₁₃ C₁₄/ C₁₅ and n is 3, 7, 9, or 12; and 45-7; 45-13 - where R is linear C₁₄/ C₁₅ and n is 7 or 13.

Other examples of nonionic surfactants include primary and secondary linear and branched alcohol ethoxylates, such as those based on C₆-C₁₈ alcohols which further include an average of from 2 to 80 moles of ethoxylation per mol of alcohol. These examples include the Genapol UD series from Clariant, described as tradenames Genapol UD 030, C₁₁-Oxo-alcohol polyglycol ether with 3 EO; Genapol UD, 050 C₁₁-Oxo-alcohol polyglycol ether with 5 EO; Genapol UD 070, C₁₁-Oxo-alcohol polyglycol ether with 7 EO; Genapol UD 080, C₁₁-Oxo-alcohol polyglycol ether with 8 EO; Genapol UD 088, C₁₁-Oxo-alcohol polyglycol ether with 8 EO; and Genapol UD 110, C₁₁-Oxo-alcohol polyglycol ether with 11 EO.

Other examples include those surfactants having a formula $\text{RO}(\text{CH}_2\text{CH}_2\text{O})_n\text{H}$ wherein R is a mixture of linear, even carbon-number hydrocarbon chains ranging from $\text{C}_{12}\text{H}_{25}$ to $\text{C}_{16}\text{H}_{33}$ and n represents the number of repeating units and is a number of from about 1 to about 12. Surfactants of this formula are presently marketed under the Genapol® tradename. available from Clariant, Charlotte, N.C., include the 26-L series of the general formula $\text{RO}(\text{CH}_2\text{CH}_2\text{O})_n\text{H}$ wherein R is a mixture of linear, even carbon-number hydrocarbon chains ranging from $\text{C}_{12}\text{H}_{25}$ to $\text{C}_{16}\text{H}_{33}$ and n represents the number of repeating units and is a number of from 1 to about 12, such as 26-L-1, 26-L-1.6, 26-L-2, 26-L-3, 26-L-5, 26-L-45, 26-L-50, 26-L-60, 26-L-60N, 26-L-75, 26-L-80, 26-L-98N, and the 24-L series, derived from synthetic sources and typically contain about 55% C_{12} and 45% C_{14} alcohols, such as 24-L-3, 24-L-45, 24-L-50, 24-L-60, 24-L-60N, 24-L-75, 24-L-92, and 24-L-98N. From product literature, the single number following the "L" corresponds to the average degree of ethoxylation (numbers between 1 and 5) and the two digit number following the letter "L" corresponds to the cloud point in °C of a 1.0 wt.% solution in water.

(3) Alkoxy block copolymers, and in particular, compounds based on ethoxy/propoxy block copolymers. Polymeric alkylene oxide block copolymers include nonionic surfactants in which the major portion of the molecule is made up of block polymeric C_2 - C_4 alkylene oxides. Such nonionic surfactants, while preferably built up from an alkylene oxide chain starting group, and can have as a starting nucleus almost any active hydrogen containing group including, without limitation, amides, phenols, thiols and secondary alcohols.

One group of such useful nonionic surfactants containing the characteristic alkylene oxide blocks are those which may be generally represented by the formula (A):



where EO represents ethylene oxide,
PO represents propylene oxide,
y equals at least 15,

(EO)_{x+y} equals 20 to 50% of the total weight of said compounds, and, the total molecular weight is preferably in the range of about 2000 to 15,000. These surfactants are available under the PLURONIC tradename from BASF or Emulgen from Kao.

5

Another group of nonionic surfactants appropriate for use in the new compositions can be represented by the formula (B):



10

wherein R is an alkyl, aryl or aralkyl group, where the R group contains 1 to 20 carbon atoms, the weight percent of EO is within the range of 0 to 45% in one of the blocks a, b, and within the range of 60 to 100% in the other of the blocks a, b, and the total number of moles of combined EO and PO is in the range of 6 to 125 moles, with 1 to 50 moles in the PO rich block and 5 to 100 moles in the EO rich block.

15

Further nonionic surfactants which in general are encompassed by Formula B include butoxy derivatives of propylene oxide/ethylene oxide block polymers having molecular weights within the range of about 2000-5000.

20

Still further useful nonionic surfactants containing polymeric butoxy (BO) groups can be represented by formula (C) as follows:



25

wherein R is an alkyl group containing 1 to 20 carbon atoms,
n is about 5-15 and x is about 5-15.

30

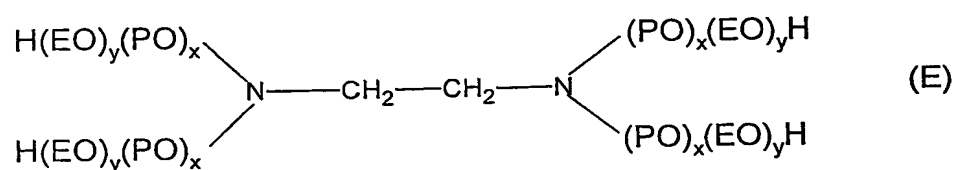
Also useful as the nonionic block copolymer surfactants, which also include polymeric butoxy groups, are those which may be represented by the following formula (D):



wherein n is about 5-15, preferably about 15,

x is about 5-15, preferably about 15, and
y is about 5-15, preferably about 15.

Still further useful nonionic block copolymer surfactants include ethoxylated derivatives
5 of propoxylated ethylene diamine, which may be represented by the following formula:



where (EO) represents ethoxy,
(PO) represents propoxy,

10 the amount of (PO)_x is such as to provide a molecular weight prior to ethoxylation of about 300 to 7500, and the amount of (EO)_y is such as to provide about 20% to 90% of the total weight of said compound.

The nonionic surfactant is present in the compositions of the present invention in an
15 amount of from about 0.1 to about 10% by weight.

Another component of the compositions of the present invention are organic solvents. Examples of organic solvents which may be included in the inventive compositions include those which are at least partially water-miscible such as alcohols (e.g., low
20 molecular weight alcohols, such as, for example, ethanol, propanol, isopropanol, and the like), glycols (such as, for example, ethylene glycol, propylene glycol, hexylene glycol, and the like), water-miscible ethers (e.g. diethylene glycol diethylether, diethylene glycol dimethylether, propylene glycol dimethylether), water-miscible glycol ether (e.g. propylene glycol monomethylether, propylene glycol mono ethylether, propylene glycol
25 monopropylether, propylene glycol monobutylether, ethylene glycol monobutylether, dipropylene glycol monomethylether, diethyleneglycol monobutylether), lower esters of monoalkylethers of ethylene glycol or propylene glycol (e.g. propylene glycol monomethyl ether acetate), and mixtures thereof. Glycol ethers having the general structure R_a-R_b-OH, wherein R_a is an alkoxy of 1 to 20 carbon atoms, or aryloxy of at least 6 carbon

atoms, and R_b is an ether condensate of propylene glycol and/or ethylene glycol having from one to ten glycol monomer units.

The organic solvent is present in the compositions of the present invention in an amount of from about 0.1 to about 10% by weight.

5

The compositions are largely aqueous in nature, and comprises as the balance of the composition water in to order to provide to 100% by weight of the compositions of the invention. The water may be tap water, but is preferably distilled and is most preferably deionized water. If the water is tap water, it is preferably substantially free of any
10 undesirable impurities such as organics or inorganics, especially minerals salts which are present in hard water which may thus undesirably interfere with the operation of the constituents present in the aqueous compositions according to the invention.

The composition of the present invention can optionally comprise one or more
15 constituents selected from coloring agents, fragrances and fragrance solubilizers, viscosity modifying agents, other surfactants, pH adjusting agents and pH buffers including organic and inorganic salts, optical brighteners, opacifying agents, hydrotropes, antifoaming agents, enzymes, anti-spotting agents, anti-oxidants, preservatives, and anti-corrosion agents. The use and selection of these constituents is
20 well known to those of ordinary skill in the art.

The benefits of the compositions described in this specification include particularly: good removal of hard water stains, good removal of soap scum stains, relatively low toxicity, as well as ease in handling of the composition due to its readily pourable or pumpable
25 characteristic, and when needed, disinfection. Further, when one or more of the optional constituents is added, i.e., fragrance and/or coloring agents, the esthetic and consumer appeal of the product is favorably improved.

The compositions according to the invention are useful in the cleaning and/or
30 disinfecting of hard surfaces, having deposited soil thereon. In such a process, cleaning and disinfecting of such surfaces comprises the step of applying a stain releasing and disinfecting effective amount of a composition as taught herein to such a stained surface. Afterwards, the compositions are optionally but desirably wiped, scrubbed or

otherwise physically contacted with the hard surface, and further optionally, may be subsequently rinsed from the surface.

The hard surface cleaner composition provided according to the invention can be desirably provided as a ready to use product in a pourable, manually squeezed bottle (deformable bottle), or spray bottle which uses a dip tube and trigger assembly to dispense a liquid. In such an application, the consumer generally applies an effective amount of the cleaning composition and within a few moments thereafter, wipes off the treated area with a rag, towel, brush or sponge, usually a disposable paper towel or sponge. In certain applications, however, especially where undesirable stain deposits are heavy, the cleaning composition according to the invention may be left on the stained area until it has effectively loosened the stain deposits after which it may then be wiped off, rinsed off, or otherwise removed. For particularly heavy deposits of such undesired stains, multiple applications may also be used.

The following examples below illustrate exemplary formulations and preferred formulations of the inventive composition. It is to be understood that these examples are presented by means of illustration only and that further useful formulations fall within the scope of this invention and the claims may be readily produced by one skilled in the art and not deviate from the scope and spirit of the invention. Throughout this specification and in the accompanying claims, weight percents of any constituent are to be understood as the weight percent of the active portion of the referenced constituent, unless otherwise indicated.

Example Formulations

Preparation of Example Formulations:

Exemplary formulations illustrating certain preferred embodiments of the inventive compositions and described in more detail in Table I below were formulated generally in accordance with the following protocol.

Into a suitably sized vessel, a measured amount of water was provided after which the constituents were added in the following sequence: thickening agents, surfactant, acid

and then the remaining constituents. Mixing, which generally lasted from 5 minutes to 120 minutes was maintained until the particular formulation appeared to be homogeneous. The exemplary compositions were readily pourable, and retained well mixed characteristics (i.e., stable mixtures) upon standing. The constituents may be added in any order.

Examples of inventive formulations are shown in Table 1 below (unless otherwise stated, the components are at 100% active).

10

Table 1						
Component	Ex. 1	Ex. 2	Ex. 3	Ex. 4	Ex. 5	Ex. 6
DI Water	89.72	84.00	84.00	84.08	80	88.02
Hostapur SAS 60*	4.58	5.00	5.00	2.92	5.00	2.92
Alfonic 810-4.5**	1.00	3.00	1.00	3.00	3.00	1.00
Ethanol	1.00	1.00	1.00	1.00	3.00	1.00
Dipropylene Glycol n-Propyl Ether			2.00	2.00	2.00	
Citric Acid Solution***		7.00	7.00	7.00	7.00	7.00
Citric Acid (anhydrous)	3.50					
Fragrance	0.20					
Total	100.00	100.00				100.00

*60% Active; Sodium C₁₄₋₁₇ secondary sulfonate salt

**C₈₋₁₀ alcohol ethoxylate having an ethylene oxide content of about 4.85 moles

***50% Active

Table 1 (cont'd)						
Component	Ex. 7	Ex. 8	Ex. 9	Ex. 10	Ex. 11	Ex. 12
DI Water	84.00	84.08	84.08	90.87	90.45	86.37
Hostapur SAS 60	5.00	2.92	2.92		2.92	
Bio-Soft D40****				4.38		4.38
Alfonic 810-4.5	1.00	3.00	1.00	1.00	1.00	1.00
Ethanol	3.00	3.00	3.00	1.00	1.00	1.00
Dipropylene Glycol n-Propyl Ether			2.00			
Citric Acid Solution (50%)	7.00	7.00	7.00			7.00
Lactic Acid				2.50	4.38	
Fragrance				0.25	0.25	0.25
Total	100.00	100.00	100.00	100.00	100.00	100.00

****40% Active; Sodium dodecylbenzene sulfonate

Table 1 (cont'd)						
Component	Ex. 13	Ex. 14	Ex. 15	Ex. 16	Ex. 17	Ex. 18
DI Water	90.83	85.83	81.75	85.83	81.75	81.83
Hostapur SAS 60	2.92	2.92	5.00	2.92	5.00	2.92
Bio-Soft D40						
Alfonic 810-4.5	1.00	3.00	3.00	1.00	1.00	3.00
Ethanol	1.00	1.00	3.00	1.00	3.00	3.00
Dipropylene Glycol n-Propyl Ether				2.00	2.00	2.00

Citric Acid Solution (50% Active)	4.00	7.00	7.00	7.00	7.00	7.00
Fragrance	0.25	0.25	0.25	0.25	0.25	0.25
Total	100.00	100.00	100.00	100.00	100.00	100.00

5

Component	Ex. 19	Ex. 20	Ex. 21	Ex. 22	Ex. 23
DI Water	85.75	85.83	81.75	84.50	84.84
Hostapur SAS 60	5.00	2.92	5.00	3.55	2.08
Alfonic 810-4.5	1.00	1.00	3.00	0.75	1.88
Ethanol	1.00	3.00	2.00	2.50	2.50
Dipropylene Glycol n-Propyl Ether			2.00	1.50	1.50
Citric Acid Solution (50% Active)	7.00	7.00	7.00	7.00	7.00
Fragrance	0.25	0.25	0.25	0.20	0.20
Total	100.00	100.00	100.00	100.00	100.00

Component	Ex. 24	Ex. 25	Ex. 26	Ex. 27
DI Water	81.87	82.97	81.87	85.25
Hostapur SAS 60	3.55	2.08	3.55	3.55
Alfonic 810-4.5	1.88	0.75	1.88	3.00
Ethanol	2.50	4.00	4.00	1.00
Dipropylene Glycol n-Propyl Ether	3.00	3.00	1.50	
Citric Acid Solution (50% Active)	7.00	7.00	7.00	7.00
Fragrance	0.20	0.20	0.20	0.20
Total	100.00	100.00	100.00	100.00

10

Component	Ex. 28	Ex. 29	Ex. 30	Ex. 31	Ex. 32
DI Water	82.30	82.30	83.05	84.92	87.02
Hostapur SAS 60	5.00	5.00	5.00	5.00	4.580
Teric G9A5					1.00
Alfonic 810-4.5	3.00	3.00	0.75	1.88	
Ethanol	1.00	2.50	4.00	1.00	0.90
Dipropylene Glycol n-Propyl Ether	1.50				
Citric Acid Solution (50% Active)	7.00	7.00	7.00	7.00	6.30
Fragrance	0.20	0.20	0.20	0.20	0.20
Total	100.00	100.00	100.00	100.00	100.00

The above formulations are expected to have good cleaning properties, including removal of soap scum.

15

Compositions of the present invention will also have good antimicrobial properties. One example formulation (Ex. 32) was tested using the AOAC Germicidal Spray Test, the EPA Virucidal Test Method, and European Test Method EN1276

		Contact time	
		5 minutes	30 seconds
5	<u>Germicidal Spray Test</u>		
	Psuedomonas aeruginosa	0/60 Pass	0/10 Pass
	Staphylococcus aureus	0/10 Pass	12/60 Fail
	Salmonella choleraesuis	0/10 Pass	0/10 Pass

		Contact time	
		5 minutes	30 seconds
10	<u>EPA Virucidal Test</u>		
	Respiratory Syncytical Virus	1.0 log reduction Fail	1 log reduction Fail
	Rotavirus	2.5 log reduction Fail	1.93 log reduction Fail
	Herpes Simplex Virus Type I	4.5 log reduction Pass	4.5 log reduction Pass
	Herpes Simplex Virus Type II	3.17 log reduction Pass	3.00 log reduction Fail
15	EN 1276		
	Escherichia coli	Pass	
	Psuedomonas aeruginosa	Pass	
	Enterococcus hirae	Pass	

Claims:

1. A composition comprising:
 - 5 an acidic constituent which comprises an acid selected from the group consisting of citric acid, sorbic acid, acetic acid, boric acid, formic acid, maleic acid, adipic acid, lactic acid, malic acid, malonic acid, glycolic acid, and mixtures thereof;
at least one anionic surfactant;
at least one nonionic surfactant;
 - 10 at least one organic solvent;
one or more optional constituents selected from coloring agents, fragrances and fragrance solubilizers, viscosity modifying agents, other surfactants, pH adjusting agents and pH buffers including organic and inorganic salts, optical brighteners, opacifying agents, hydrotropes, antifoaming agents, enzymes, anti-spotting agents, anti-oxidants,
 - 15 preservatives, and anti-corrosion agents; and
the balance, water.
2. The composition according to claim 1 wherein the acid is citric acid.
- 20 3. The composition according to claims 1 and 2 wherein the organic solvent is selected from alcohols, glycols, water miscible ethers, water miscible glycol ethers, monalkylether esters, and mixtures thereof.
4. The composition according to claims 1 to 3 wherein the organic solvent is
25 selected from alcohols, water miscible glycol ethers and mixtures thereof.
5. The composition according to claims 1 to 4 wherein the organic solvent is an alcohol.
- 30 6. The composition according to claims 1 to 5 wherein the organic solvent is ethanol.
7. The compositions according to claims 1 to 6 wherein the pH is from about 1 to about 5.

8. The composition according to claims 1 to 7 wherein the pH is from about 1 to 4.
9. The compositions according to claims 1 to 8 wherein the pH is from about 1 to about 3.
10. The compositions according to claim 4 wherein the organic solvent is a mixture of alcohol and water miscible glycol ether.
11. The compositions according to claim 10 wherein the organic solvent is mixture of ethanol and water miscible glycol ether.
12. The compositions according to claims 10 and 11 wherein the pH is from about 1 to about 5.
13. The composition according to claims 10 to 12 wherein the pH is from about 1 to 4.
14. The compositions according to claims 10 to 13 wherein the pH is from about 1 to about 3.
15. The composition according to claims 1 to 14 wherein the anionic surfactant is a sulfonate.
16. A composition comprising:
from about 0.1 to about 10% by weight of an acidic constituent which comprises an acid selected from the group consisting of citric acid, sorbic acid, acetic acid, boric acid, formic acid, maleic acid, adipic acid, lactic acid, malic acid, malonic acid, glycolic acid, and mixtures thereof;
from about 0.1 to about 10% by weight of at least one anionic surfactant;
from about 0.1 to about 10% by weight of at least one nonionic surfactant;
from about 0.1 to about 10% by weight of at least one organic solvent;
one or more optional constituents selected from coloring agents, fragrances and fragrance solubilizers, viscosity modifying agents, other surfactants, pH adjusting agents

and pH buffers including organic and inorganic salts, optical brighteners, opacifying agents, hydrotropes, antifoaming agents, enzymes, anti-spotting agents, anti-oxidants, preservatives, and anti-corrosion agents; and the balance, water.

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17. The composition according to claim 16 wherein the acid is citric acid.

18. The composition according to claims 16 and 17 wherein the organic solvent is selected from alcohols, glycols, water miscible ethers, water miscible glycol ethers,
10 monalkylether esters, and mixtures thereof.

19. The composition according to claims 16 to 18 wherein the organic solvent is selected from alcohols, water miscible glycol ethers and mixtures thereof.

15 20. The composition according to claims 16 to 19 wherein the organic solvent is an alcohol.

21. The composition according to claims 16 to 20 wherein the organic solvent is ethanol.

20

22. The compositions according to claims 16 to 21 herein the pH is from about 1 to about 5.

23. The composition according to claims 16 to 22 wherein the pH is from about 1 to
25 4.

24. The compositions according to claims 1 to 23 herein the pH is from about 1 to about 3.

30 25. The compositions according to claim 18 herein the organic solvent is a mixture of alcohol and water miscible glycol ether.

26. The compositions according to claim 25 wherein the organic solvent is mixture of ethanol and water miscible glycol ether.

27. The compositions according to claims 25 and 26 wherein the pH is from about 1 to about 5.

5 28. The composition according to claims 25 to 27 wherein the pH is from about 1 to 4.

29. The compositions according to claims 25 to 28 wherein the pH is from about 1 to about 3.

10

30. The composition according to claims 16 to 29 wherein the anionic surfactant is a sulfonate.

31. A composition comprising:

15 an acidic constituent which comprises an acid selected from the group consisting of citric acid, sorbic acid, acetic acid, boric acid, formic acid, maleic acid, adipic acid, lactic acid, malic acid, malonic acid, glycolic acid, and mixtures thereof;
at least one anionic surfactant;
at least one nonionic surfactant;
20 at least one organic solvent selected from the group alcohols, glycols, water-miscible ethers, water-miscible glycol ether, monoalkylethers esters, and mixtures thereof;
one or more optional constituents selected from coloring agents, fragrances and fragrance solubilizers, viscosity modifying agents, other surfactants, pH adjusting agents
and pH buffers including organic and inorganic salts, optical brighteners, opacifying
25 agents, hydrotropes, antifoaming agents, enzymes, anti-spotting agents, anti-oxidants, preservatives, and anti-corrosion agents; and
the balance, water.

32. The composition according to claim 31 wherein the acid is citric acid.

30

33. The composition according to claims 31 and 32 wherein the organic solvent is an alcohol.

34. The composition according to claims 31 to 33 wherein the organic solvent is ethanol.

5 35. The compositions according to claims 31 to 34 wherein the pH is from about 1 to about 5.

36. The composition according to claims 31 to 35 wherein the pH is from about 1 to 4.

10 37. The compositions according to claims 31 to 36 wherein the pH is from about 1 to about 3.

38. The composition according to claims 31 to 37 wherein the anionic surfactant is a sulfonate.

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39. The compositions substantially represented by Examples Ex. 1 to Ex. 31.

40. A method of treating a hard surface comprising applying an effective amount of a composition according to claims 1 to 39 to the surface in need of treatment.

Abstract

IMPROVEMENTS IN OR RELATING TO ORGANIC COMPOSITIONS

- 5 The present invention is directed to an acidic hard surface cleaning composition.

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